

THE PINE BARRENS OF NEW JERSEY.

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Lying between the New Jersey Southern Railroad and Barnegat Bay and north of Mullica river there is an area of about four hundred square miles of wilderness, traversed by no railroad and practically uninhabited. This region, which is the very heart of the Pine Barrens of southern New Jersey, is so inaccessible that, so far as I can learn, it has been visited of late years by only an occasional botanist, although its outer borders, at such places as Atsion, Hammonton, Tuckerton, Whitings, Woodmansie, and the Upper or West Plains, have been visited more frequently.

A forty-mile trip in midsummer across the Pine Barrens has drawbacks enough to make even the most enthusiastic flower-lover think twice before entering upon it. The sands are heavy, the flies and ticks and mosquitoes are numerous, the heat is excessive, springs are few and far between, and forest fires are apt to be at their devastating work in the very place to be visited. However, we decided to chance these things, and on the evening of July 3, 1899, found ourselves landed at an old-fashioned hotel at Tuckerton, and bargaining with a resident South Jerseyman—half farmer, half sportsman, and altogether a pioneersman, to use his own expression—for a team to take us across to Atsion with board and lodging *en route*, and the next morning bright and early we were jogging along the road that leads from Tuckerton northwest toward the Lower Plains.

Mile after mile of oak and pine barrens were passed without sign of human habitation, and when five miles were registered we came to the spot which is marked upon the maps as Munyon Field. Here, in old times, had been a house, and a family had lived here, scratching some sort of a living from the sand and fattening hogs on the abundant mast which strewed the ground under the little chinquapin oaks. Now no vestige of human occupation remains save a little clearing which is rapidly filling up with wildings

from the surrounding forest, prominent among them that characteristic primrose of the Pine Barrens, *Oenothera sinuata* L. Two or three miles more of similar wilderness and the forest growth thinned out and dwindled down to dwarf proportions as we emerged upon the rolling heathlike expanse of the East or Lower Plains. These plains are about nine miles northwest of Tuckerton and lie south of the East Branch of the Wading river. The West or Upper Plains, which are reached most easily from Woodmansie, lie north of the said branch of the Wading river, and are of less extent than the Lower Plains. The latter possess an area (according to Pinchot's report) of about 7,700 acres, or, roughly, five miles long by two and one-half miles across. Nothing could be more restful to the eye than this rolling expanse of green plain melting away in every direction into the misty distance, the white sand gleaming out here and there like white caps on an emerald sea. The flora appears to be identical with that of the Upper Plains, which have more than once been the objective point of visits by members of the Academy. The luxuriant vines of the bearberry (*Arctostaphylos uva-ursi*) lay sprawling everywhere in the sun, their dry, astringent berries not yet tinged with the crimson that makes them so conspicuous in winter; the pyxie, trailing arbutus, hudsonia, laurel, tephrosia and leiophyllum were so abundant that the whole place must have been like a garden in the spring. *Corema Conradii* is on the Lower Plains as well as on the Upper, a characteristic plant, growing in masses of sallow green. On July 3 we found it in mature fruit—in fact, past its prime, so that the dry little drupes easily shattered off after being transferred to the press.

The same growth of stunted scrub and blackjack oaks and pitch pine covers these Lower Plains as covers the Upper. The average height of these curious little trees, which are abundantly fruited with acorns and cones, is hardly over three feet. Occasionally a clump six feet high or so occurs, and we noted a sassafras or two about six feet high, but for considerable stretches one may walk with his knees in the tree tops. Gifford Pinchot, in his account of the Plains, appended to the last annual report of the New Jersey State Geologist, calls attention to the fact that while the pine is chiefly of coppice growth—that is consisting of sprouts from stumps or from creeping branches of trees which have been killed back by fire—many of the small specimens which appear like

sprouts will, if examined, be found to be in reality seedlings with stems and branches creeping on the ground. The prostrate seedlings, he states, exhibit a remarkable similarity to the forms assumed by trees near the timber line on high mountains, and it is a fair inference that the very harsh and exposed situations in which they grow on these South Jersey plains has had an effect analogous to that of great elevation.

About half-way across the Lower Plains, where the road dips down into a little hollow in the bosom of the hills, we found a good-sized pond with sphagnum border, and bearing on its waters several floating islands of sphagnum supporting luxuriant growths of *Cassandra calyculata*, *Eriocaulon*, sedges, sundews, etc. This, our driver told us, was called Watering Place Pond, and was well known to old hunters, who in former days had killed many a deer on its margin. *Castalia odorata*, *Pogonia ophioglossoides*, *Limodorum tuberosum*, *Azalea viscosa*, *Drosera filiformis* and *intermedia*, *Polygala Nuttallii* and *lutea*, *Proserpinaca pectinacea*, *Hypoxis erecta*, *Lysimachia stricta* were in bloom. *Carex Walteriana*—a graceful southern sedge, which finds its northern limit in the southern New Jersey Pine Barren swamps, luxuriated along with *Woodwardia Virginica*, in the shallow water of the pond's margin, and on the dryer banks the dwarf huckleberry, *Gaylussacia dumosa*—called by our driver, grouseberry—was abundant. The fruit of the other *Gaylussacia* common throughout this region—*G. resinosa*—the same authority invariably spoke of as hog huckleberries, or more familiarly “hoggies.” The swamp blueberry (*Vaccinium corymbosum*) also grew by this pond, its luscious fruit just maturing and tempting one to forget home and linger forever by the loaded bushes, as the lotos tempted the companions of old Ulysses.

After leaving the Plains, the old road wound now through dry sandy pine woods, bare of conspicuous flowers, save, perhaps, for the ever-present *Melampyrum lineare* and the yellow banners of *Baptisia tinctoria*—now through damp savanna lands, where we had as roadside companions the thread-leaved sundew's purple flowers, the orange heads of *Polygala lutea*, the magenta blossoms of the grass pink and the snake-mouth *Pogonia*. *Lophiola Americana* was just coming into blossom, and nothing could be more exquisite than the beauty of its white flannelly corymbs in a condition of half bud, half bloom. The expanded blossoms

of this characteristic plant of the damp barrens, though individually small, are wonderfully rich in color, with orange anthers and rich reddish-brown sepals crested with lines of golden wool. In some places the bearberry formed a veritable carpet. The gathering of this plant for shipment to the cities, where it has been more or less extensively employed in medicine, used to be a considerable industry in southern New Jersey. A reminiscence of this oldtime trade still lingers in one of the common names of the plant down there, viz., *wursy*—the shop name of the bearberry being *uva-ursi*. In a savanna through which we passed just before reaching the east branch of the Wading river we were greeted with the sight of *Abama Americana* in the height of bloom, studding the grass as thick as buttercups. This beautiful little plant, which bears a spike of fragrant yellow blossoms, and is no less beautiful in fruit, when the whole plant, stem and capsules, is suffused with a vermilion glow, is interesting as being found nowhere else in the world except in the wet pine barrens of southern New Jersey. In this same savanna we were delighted to find another most interesting plant, *Tofieldia racemosa*, a liliaceous herb covered with a rough, glutinous pubescence, that makes it anything but pleasant to handle. This species is truly a southerner, and, though the books give its northern limit as southern New Jersey, is credited in Britton's *Catalogue* to only one locality in that State—namely, near Manchester. There it is very scarce and not recently reported, so that our discovery of it would seem to be worthy of note.

Crossing the east branch of the Wading river, and passing through a cedar swamp which was still fragrant (July 4) with the perfume of the blossoms of *Magnolia Virginiana*, we came out upon some cultivated fields and a farmhouse—the first sign of human life that we had met with since leaving Tuckerton eight or nine hours before. It was interesting to note the establishment here in this little cultivated spot in the wilderness, of such familiar weeds as the ox-eyed daisy, English plantain, sheep sorrel, rabbit's-foot clover and *Plantago aristata*, as well as the white hoarhound, *Marrubium vulgare*. A mile or so west of this place and at least four miles from the Plains, we came again upon *Corema Conradii*, this time growing in pine woods, though by no means so abundant as on the Plains.

That evening we pitched our camp on the banks of the Wading river, at a crossing called Allen's Bridge, and while our driver was

engaged in preparing supper, we made a sortie across the river and, where the sphagnum was sprinkled with plants of *Drosera filiformis*, with *Lycopodium Carolinianum* growing hard by, we discovered *Schizaea pusilla* in fair abundance. The plants were scarcely fully developed yet, many of them indeed just uncoiling. A number of fertile fronds of the previous year still persisted, but brown and dead and with spore-cases empty. It may not be generally known that this little fern, as well as its relative, *Lygodium palmatum*, is evergreen, at least so far as the sterile fronds are concerned, and a very good time to search for it is in mild midwinter, when, the snow being off the ground and the earth rather bare of green vegetation, the tiny corkscrew fronds are comparatively conspicuous. Growing in the water along the shore of the river at Allen's Bridge, *Juncus militaris* was abundant—a stately rush, which is of especial interest as possessing two sorts of leaves, one of the usual rushlike kind, and the other submerged, borne in dense fascicles, and developing threadlike, knotted blades a foot or more in length—in fact, one would be inclined to regard them as roots, instead of leaves. Near here, also, *Rhynchospora Torreyana* was collected—a beak rush peculiar to the pine barren swamps of the coast between New Jersey and South Carolina, and one of rare beauty.

On the edge of a cedar swamp near Calico—a half-day's travel further west—we again found *Schizaea pusilla* at home, but sparingly, and growing in the same locality, like so many little black-headed pins stuck in the sand, were plants of the tiny *Utricularia cleistogama*. Not far from here we came upon the rarity of an inhabited house. There was an old stone-lined well in the shady yard, and as we leaned on the curbing while the bucket was bringing us up a drink, we were greeted with a beautiful sight of scores of fern plants clinging in the cool damp crevices of the stones far down in the well. *Phegopteris Dryopteris*, *Asplenium filixfemina*, *Asplenium platyneuron*, and one of the varieties of *Dryopteris spinulosa* were collected. These are not at all Pine Barren species; indeed, *Phegopteris Dryopteris* is a typical mountain form, and as far as New Jersey is concerned, Britton's *Catalogue* gives for it but two stations, both of which are in northern counties of the State, more than a hundred miles away. How it and its companions happened to get in that old well in the heart of the Pine Barrens is an interesting mystery.

From Calico to Batsto, where we had planned to pass the night, our road (which, by the way, was no easy one to follow) led through "Old Martha." This forlorn and desolate spot, a sort of Tadmor in the wilderness, marks the scene of a former hive of industry—for here, in old times, stood and flourished an iron furnace, drawing its supplies of ore from the bogs close by, while the abundant pine forests on every side furnished a wealth of charcoal for fuel. Now nothing remains but a heap of ruins where the furnace stood, and an occasional chimney stack where the houses of the operators had been. A grove of catalpa trees and a wilderness of white poplar suckers helped to give an uncanny look to the place, and we were glad to be off again under the familiar shadows of the pitch pines and scrub oaks.

The road to Batsto is through a very barren stretch, and we found the botanizing poor. From Batsto, where we passed the night, we took a northerly route through sandy pine barrens between the Atsion and Batsto rivers to Quaker Bridge, a spot classic in botanical annals as the first-discovered station of *Schizaea pusilla*. Here we built our last camp-fire, and made a farewell tea of *Solidago odora* leaves, which turned out to be a rather palatable brew—if taken hot. The beautiful greenbrier, *Smilax laurifolia*, another southerner which attains its Ultima Thule in the New Jersey pines, was noted here, while deep in the cedar swamp we found *Abama Americana* in bloom, though not nearly so abundant as we had seen it in the savanna near the Plains. The stream at Quaker Bridge was quite a wild water-garden, with the white water lilies, the blue spires of *Pontederia*, the yellow helmets of the flowers of the bladderwort (*Utricularia fibrosa*), and the showy red blossoms of *Rhexia Virginica*, while here and there in the midst of the green grasses along the river, *Sabbatia lanceolata* would display its ample cymes of white bloom, like showers of stars half fallen. From here to Atsion is four miles, and there we arrived in time for the evening train citywards.

Among the grasses gathered on this trip, and which were submitted to a close examination later on, were found specimens of *Panicum* which Mr. Nash describes as *Panicum Clutei*,¹ in honor of W. N. Clute, my companion on this excursion.

¹ *Bul. Torrey Bot. Club*, Nov., 1899.